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EXAMINER	
MOORE, IAN N	

ART UNIT	PAPER NUMBER
2661	6

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/688,152	LINDBLOM ET AL.	
	Examiner	Art Unit	
	Ian N Moore	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-13,15-17 and 20-25* is/are rejected.

7)☐ Claim(s) *3,4,14,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4,5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1,5,6,8,10,16,20,21,23, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Ganmukhi (WO 98/26611).

Regarding claims 1 and 16, Ganmukhi'611 discloses an apparatus and method of operating a multi-plane cell switching node (see FIG. 1, a network Switch 10) comprising:

a first switch plane (see FIG. 1, Switch Fabric A, 16a);

plural switch port interface units (see FIG. 1, a plurality of input modules 12 and plurality of output modules 14);

a second switch plane (see FIG. 1, Switch Fabric B, 16b) which, in response to detection of a fault in the first switch plane (see col. 4, lines 29-31, col. 5, lines 19-24; note that when a defective switch fabric (i.e. failing of Switch fabric 16a) is detected),

stops egress traffic flow from the second switch plane, and sends a plane change cell (see FIG. 2, Broadcast Signal, SYNC_TIME_L) to the plural switch port interface units (see col. 4, lines 2-21; note that a Broadcast Signal/cell is send/transmitted to the plurality of input and output modules to cease/stop the egress/output traffic cell flow from the switch fabric 16b);

wherein, in response to receipt of the plane change cell, the switch port interface units redirect traffic cells to the second switch plane (see col. 4, lines 2-9; note that to the input/output modules to switch/redirect the traffic cells to the switch fabric 16b when a broadcast signal/cell warrants a switchover indication), and

upon determining when traffic cells destined to a particular switch port interface unit have been flushed from the first switch plane (see col. 5, lines 1-31; note that the input/output modules detects/determines when the operative switch (i.e. Switch fabric 16a) has drained/flushed the traffic data units/cells (i.e. when the output modules no longer receive traffic data cells from the switch fabric 16a)); and

send an egress traffic flow starting to cell to the second switch plane (see col. 5, lines 1-31; note that the output traffic flow is restarted by switching over to switch fabric 16b).

Regarding claims 5 and 20, Ganmukhi'611 discloses sending first predetermined non-traffic cells (i.e. the predetermined number of idle cells for switch fabric 16a) from the plural switch port interface units to the first switch plane (see col. 6, lines 4-23; note that the predetermined number of idle cells are transmitted from input/output modules to the switch fabric 16a);

in accordance with receipt of the first predetermined non-traffic cells (i.e. the predetermine number of idle cells for switch fabric 16a) via the first switch plane at a particular switch port interface unit (see col. 6, lines 4-10; note that the predetermined number of idle cells are received at any particular input/output modules when there is no pending/left-over/remaining cells in the switch fabric 16a), sending a second predetermined

non-traffic cell (i.e. the predetermined number of idle cells for switch fabric 16b) from the particular switch port interface unit to the second switch plane (see col. 6, lines 4-23; note that the predetermined number of idle cells are also transmitted to the switch fabric 16b from each input/output module); and

wherein the step of starting the egress traffic flow from the second switch plane to the particular switch port interface unit is performed upon reception of the second predetermined non-traffic cell from the particular switch port interface unit at the second switch plane (see col. 6, lines 4-23, col. 8, lines 1-31; note that when the last of the output modules receive a predetermined number of successive idles cells from both switch fabrics, the output traffic flow from switch fabric 16b is restarted).

Regarding claims 6 and 21, Ganmukhi'611 discloses the first predetermined non-traffic cells (i.e. the predetermine number of idle cells for switch fabric 16a) are synchronization cells (see col. 8, lines 6-31; note that first predetermined non-traffic cells are the idle cells. Idles cells are utilized in order to synchronize the switch fabrics. Thus, they are synchronization cells).

Regarding claims 8 and 23, Ganmukhi'611 discloses stopping ingress of cells to the first switch plane and the second switch plane (see col. 4, lines 2-21; note that during warranting switchover period, the traffic cell flow from the plurality of input modules to both switch fabrics are ceased) until expiration of a predetermined time (see FIG. 2, Time T4; col. 6, lines 4-10 and col. 8, lines 1-31; note that the switchover permission/condition will not be

achieved/activated unless the output modules received all successive predefined idle cells within predefine time interval).

Regarding claims 10 and 25, Ganmukhi'611 discloses the first switch plane serves as an active switch plane (see FIG. 1, Switch Fabric A, 16a is active) and the second switch plane serves as a passive switch plane (see FIG. 1, Switch Fabric B, 16b is standby; also see col. 4, lines 29-31, col. 5, lines 19-24).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 2,7,11,12,15,17, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganmukhi (WO 98/26611) in view of Nakano (U.S. 5,321,688).

Regarding claim 11, Ganmukhi'611 discloses a method of operating a multi-plane cell switching node (see FIG. 1, a network Switch 10), the cell switching node having a first switch plane (see FIG. 1, Switch Fabric A, 16a); a second switch plane (see FIG. 1, Switch Fabric B, 16b); and plural switch port interface units (see FIG. 1, a plurality of input modules 12 and plurality of output modules 14); the method comprising:

in response to receipt of the fault detection (see col. 4, lines 29-31, col. 5, lines 19-24; note that when a defective switch fabric (i.e. failing of Switch fabric 16a) is detected), the second switch plane:

sending a plane change cell (see FIG. 2, Broadcast Signal, SYNC_TIME_L) to the plural switch port interface units; stopping egress traffic flow in the second switch plane (see col. 4, lines 2-21; note that a Broadcast Signal/cell is send/transmitted to the plurality of input and output modules to cease/stop the egress/output traffic cell flow from the switch fabric 16b);

in response to receipt of the plane change cell, redirecting traffic cells sent from to the plural switch port interface units from the first switch plane to the second switch plane (see col. 4, lines 2-9; note that to the input/output modules to switch/redirect the traffic cells to the switch fabric 16b when a broadcast signal/cell warrants a switchover indication);

sending first predetermined non-traffic cells (i.e. the predetermined number of idle cells for switch fabric 16a) from the plural switch port interface units to the first switch plane (see col. 6, lines 4-23; note that the predetermined number of idle cells are transmitted from input/output modules to the switch fabric 16a);

in accordance with receipt of the first predetermined non-traffic cells (i.e. the predetermine number of idle cells for switch fabric 16a) via the first switch plane at a particular switch port interface unit (see col. 6, lines 4-10; note that the predetermined number of idle cells are received at any particular input/output modules when there is no pending/left-over/remaining cells in the switch fabric 16a), sending a second predetermined non-traffic cell (i.e. the predetermined number of idle cells for switch fabric 16b) from the

particular switch port interface unit to the second switch plane (see col. 6, lines 4-23; note that the predetermined number of idle cells are also transmitted to the switch fabric 16b from each input/output module);

using the second predetermined non-traffic cell to start egress flow of cells from is the second switch plane to the particular switch port interface unit (see col. 6, lines 4-23, col. 8, lines 1-31; note that when the last of the output modules receive a predetermined number of successive idles cells from both switch fabrics, the output traffic flow from switch fabric 16b is restarted).

Ganmukhi'611 does not explicitly disclose a fault-detecting switch port interface unit sending a fault detection cell to the second switch/plane upon detection of a fault in the first switch/plane/line.

However, the above-mentioned claimed limitations are taught by Nakano'688. In particular, Nakano'688 teaches a fault-detecting switch port interface unit (see FIG. 2, interface of device 23B) sending a fault detection cell (i.e. OAM cell) to the second switch/plane (i.e. downstream device) upon detection of a fault (see FIG. 2, Line E of the switch 21) in the first switch/plane/line (see col. 2, line 11-19 and see col. 3, lines 1-10; note that OAM cell is transmitted toward the downstream device upon detection of a failure in the line E of switch 21).

In view of this, having the system of Ganmukhi'611 and then given the teaching of Nakano'688, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ganmukhi'611, by providing a method of detecting a failure and sending an OAM cell to other system/component, as taught by

Nakano'688. The motivation to combine is to obtain the advantages/benefits taught by Nakano'688 since Nakano'688 states at col. 2, line 1-10 that such modification would provide the instant detection of the OAM cell at the downstream device upon occurrence of failure.

Regarding claims 2 and 17, Ganmukhi'611 discloses all aspects of the claimed invention set forth in the rejection of Claim 1 and 16 as described above.

Ganmukhi'611 does not explicitly disclose a fault-detecting switch port interface unit sending a fault detection cell to the second switch/plane upon detection of a fault in the first switch/plane/line.

However, the above-mentioned claimed limitations are taught by Nakano'688. In particular, Nakano'688 teaches a fault-detecting switch port interface unit (see FIG. 2, interface of device 23B) sending a fault detection cell (i.e. OAM cell) to the second switch/plane (i.e. downstream device) upon detection of a fault (see FIG. 2, Line E of the switch 21) in the first switch/plane/line (see col. 2, line 11-19 and see col. 3, lines 1-10; note that OAM cell is transmitted toward the downstream device upon detection of a failure in the line E of switch 21).

In view of this, having the system of Ganmukhi'611 and then given the teaching of Nakano'688, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ganmukhi'611, by providing a method of detecting a failure and sending an OAM cell to other system/component, as taught by Nakano'688 for the same motivation as stated above in Claim 11.

Regarding claims 7 and 22, Ganmukhi'611 discloses the second predetermined non-traffic cell as described above in claims 5 and 20.

Ganmukhi'611 does not explicitly disclose a management cell.

However, the above-mentioned claimed limitations are taught by Nakano'688. In particular, Nakano'688 teaches a management cell (see col. 3, lines 1-10; an OAM cell)

In view of this, having the system of Ganmukhi'611 and then given the teaching of Nakano'688, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ganmukhi'611, by providing an OAM cell, as taught by Nakano'688. The motivation to combine is to obtain the advantages/benefits taught by Nakano'688 since Nakano'688 states at col. 2, line 1-10 that such modification would not disturb other normal traffic by transferring of OAM cell.

Regarding claim 12, Ganmukhi'611 discloses stopping ingress of cells to the first switch plane and the second switch plane (see col. 4, lines 2-21; note that during warranting switchover period, the traffic cell flow from the plurality of input modules to both switch fabrics are ceased) until expiration of a predetermined time (see FIG. 2, Time T4; col. 6, lines 4-10 and col. 8, lines 1-31; note that the switchover permission/condition will not be achieved/activated unless the output modules received all successive predefined idle cells within predefine time interval).

Regarding claim 15, Ganmukhi'611 discloses the first switch plane serves as an active switch plane (see FIG. 1, Switch Fabric A, 16a is active) and the second switch plane

serves as a passive switch plane (see FIG. 1, Switch Fabric B, 16b is standby; also see col. 4, lines 29-31, col. 5, lines 19-24).

2. Claims 9, 13, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganmukhi'611 and Nakano'688 as applied to claims 1,11,8,12,16, and 23 above, and further in view of well established teaching in art.

Regarding claims 9,13, and 24, the combined system of Ganmukhi'611 and Nakano'688 discloses all aspects of the claimed invention set forth in the rejection of Claims 1,11,8,12,16, and 23 as described above, and Ganmukhi'611 further teaches setting the predetermined time to ensure that the switch port interface unit has had time to receive the plane change cell and to redirect traffic cells to the second switch plane (see col. 4, line 22 to col. 5, lines 3-19; note that setting/requiring/allowing a certain amount of time so that the switch fabric is fully drained of traffic data/cells and to ensure the both fabrics are ready performed switchover).

Neither Ganmukhi'611 nor Nakano'688 explicitly discloses setting the predetermined time sufficiently long to ensure the slowest switch port interface unit has had time to perform switchover.

However, the above-mentioned claimed limitations are taught by well-established teaching in art. In particular, well established teaching in art teaches setting the predetermined time sufficiently long to ensure that the slowest switch port interface unit has had time to perform switchover. Note that Ganmukhi'611 teaches the purpose of ensuring and synchronizing both fabrics before switchover in order to avoid loss of data traffic/cell

due to switchover. Thus, it is clear that when setting a threshold for a timer, it must be long enough to cover total processing time of the every components/devices in the switch, thereby achieving the readiness condition to switchover.

In view of this, having the system of Lennen'287 and then given the teaching of Nakano'688, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ganmukhi'611, by providing a time long enough to cover all the processing inside the switch, as taught by well established teaching in art. The motivation to combine is to obtain the advantages/benefits taught by well established teaching in art that such modification would reduce the loss of traffic data/cell during switchover (see Ganmukhi'611 col. 4, lines 25-30).

Allowable Subject Matter

3. **Claims 3,4,14,18, and 19** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM
3/15/04

RICKY NGO
PRIMARY EXAMINER